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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,031	01/15/2002	Alphons Antonius Maria Lambertus Bruekers	NL 010532	4247

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EXAMINER	
HARPER, V PAUL	

ART UNIT	PAPER NUMBER
2654	

DATE MAILED: 04/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/047,031	BRUEKERS ET AL.	
	Examiner	Art Unit	
	V. Paul Harper	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,11 and 17-21* is/are rejected.

7)☒ Claim(s) *7-10,12-16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/04/2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The Examiner has considered the references listed in the Information Disclosure Statement dated 11/04/2002. A copy of the Information Disclosure Statement is attached to this office action.

Preliminary Amendment

2. The examiner acknowledges the fact the preliminary amendment (submitted on 1/15/2002) is used in the following rejection.

Claim Objections

3. Claim 7 is objected to because on line 10 the phrase "the hash (sample) value" is unclear and it is suggested that the phrase be replaced with –the hash value--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 17 recites the limitation "said robust feature" in line 8. There is insufficient antecedent basis for this limitation in the claim. The examiner suggests that the phrase be replaced by –said first robust feature--.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1-6, 11, 17- 21 are rejected under 35 U.S.C. 102(a) as being anticipated by Lin, C. Y, et al. ("Watermarking and Digital Signature Techniques for Multimedia Authentication and Copyright Protection" PhD Thesis, Columbia University, Graduate School of Arts and Sciences, 2000), hereinafter referred to as Lin.

Regarding **claim 1**, Lin teaches methods for watermarking and digital signature techniques for multimedia authentication and copyright protection. Lin's methods include the following steps:

- receiving the output signal, the output signal being obtained from signal transformation of an input signal (p. 6, Fig. 1-1, Rx with verification; p. 30, §2.3, Fig. 2-1, "Received JPEG Compressed bit-stream"),
- receiving a first robust feature, the first robust feature being derived from said input signal (§2.3, Fig. 2-1, Signature S),
- deriving a second robust feature from the output signal (§2.3, Fig. 2-1, $\hat{F}$); and
- identifying a degree of similarity between said first robust feature and said second robust feature (§2.3, Fig. 2-1, Comparator generating a result).

Regarding **claim 2**, Lin teaches everything claimed, as applied above (see claim 1). In addition, Lin teaches "correcting the output signal into a corrected signal in dependence on said degree of similarity" (Abstract, "we have implemented a unique Self-Authentication-and-Recovery Images (SARI) system"; §3.4, in particular, p. 96, ¶2, it they do not match the changed blocks are identified and recovered).

Regarding **claim 3**, Lin teaches everything claimed, as applied above (see claim 1). In addition, Lin teaches the steps of:

- encoding the input signal into an encoded signal (Abstract, approach works with lossy compression, and through transcoding; §1.2, ¶1; §2.2, ¶1, encoder) ; and
- transmitting the encoded signal and the first robust feature (p. 6, Fig. 1-1, indicates transmission and verification; §2.3, Fig. 2-1).

Regarding **claim 4**, Lin teaches everything claimed, as applied above (see claim 1). In addition, Lin teaches the steps of:

- receiving an encoded signal (§2.3, p. 31, Fig. 2-1, received JPEG compressed bit-stream);
- decoding said encoded signal into an output signal (p. 31, Fig. 2-1, decoder).

Regarding **claim 5**, Lin teaches everything claimed, as applied above (see claim 3). In addition, Lin teaches "the step of embedding the first robust feature into the

encoded signal through watermark technology" (§3, Watermarks, in particular, p. 91, §3.3, ¶1, two kinds of signature bits can be embedded).

Regarding **claim 6**, Lin teaches everything claimed, as applied above (see claim 1). In addition, Lin teaches that for each of said input and output signals, a robust feature is derived by:

- splitting an information signal in successive time intervals (p. 66, §2.6.1, each video sequence is composed of several sequential group of pictures (GOP), inherently split into successive time intervals); and
- computing a hash value from a scalar property or vector of properties of the information signal within each time interval (§2.7.1, p. 69, in particular, ¶3, hash values are calculated for each of the pictures in a GOP).

Regarding **claim 11**, Lin teaches everything claimed, as applied above (see claim 1). In addition, Lin teaches "that the transformation is a lossy transformation" (abstract, the procedure can accept quantization-based lossy compression; §2, §2.2 "Lossy compression"; §2.2 "Authentication System").

Regarding **claim 17** (note 112 2nd rejection in §4), Lin teaches methods for watermarking and digital signature techniques for multimedia authentication and copyright protection. Lin's teachings include the following:

- means for receiving are output signal, the output signal being obtained from signal transformation of an input signal (§1.2, ¶1; p. 6, Fig. 1-1, Rx with verification; p. 30, §2.3, Fig. 2-1, Received JPEG Compressed bit-stream),
- receiving means for receiving a first robust feature, the first robust feature being derived from the input signal (§2.3, Fig. 2-1, Signature S);
- analysing means for deriving a second robust feature from the output signal (§2.3, Fig. 2-1, $\hat{F}$); and
- comparing means for identifying a degree of similarity between said [first] robust feature and a second robust feature derived from an input signal so as to obtain a similarity signal (§2.3, Fig. 2-1, Comparator generating a result).

Regarding **claim 18**, Lin teaches everything claimed, as applied above (see claim 17). In addition, Lin teaches a "correcting means for correcting the output signal into a corrected signal in dependence of said similarity signal" (Abstract, "we have implemented a unique Self-Authentication-and-Recovery Images (SARI) system"; §3.4, in particular, p. 96, ¶2, it they do not match the changed blocks are identified and recovered).

Regarding **claim 19**, Lin teaches everything claimed, as applied above (see claim 17). In addition, Lin teaches the steps of:

- receiving means for receiving an encoded signal from a transmitter (§2.3, p. 31, Fig. 2-1, received JPEG compressed bit-stream, which inherently comes from a transmitter),

- decoding means for transforming the encoded signal into the output signal (p. 31, Fig. 2-1, decoder).

Regarding **claim 20**, Lin teaches everything claimed, as applied above (see claim 19). In addition, Lin teaches the following:

- analyzing means for deriving a first robust feature from an input signal (§2.3, ¶1; §3.3, "Generating and Embedding Authentication Bits");
- encoder means for encoding the input signal into an encoded signal (Abstract, approach works with lossy compression, and through transcoding; §1.2, ¶1; §2.2, ¶1, encoder); and
- transmitting means for transmitting the encoded signal and the first robust feature (p. 6, Fig. 1-1, indicates transmission and verification; §3.3, can embed authentication bits).

Regarding **claim 21**, Lin teaches methods for watermarking and digital signature techniques for multimedia authentication and copyright protection. Lin's teachings include the use of data carriers comprising a data channel corresponding to a multimedia signal and a data channel corresponding to a robust feature associated to said multimedia signal (p. 10, ¶3, digital signatures can be part of the header or stored [and transmitted] separately from the multimedia data; Fig. 2-1 shows the image/JPEG data and the signature as separate).

Allowable Subject Matter

6. **Claims 7-10 and 12-16** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 7, it is noted that the closest prior art of record, Lin, teaches the encryption of the feature codes and the hash values of a sequence of pictures, but Lin does not teach transforming the information signal within a time interval into disjoint bands, calculating a property of the signal in each of the bands, comparing the properties in the bands with respective thresholds, and representing the results of said comparisons by respective bits of the hash value. Thus cited prior art alone or in combination, does not fairly suggest or disclose the claimed combination of features.

Regarding claim 12, it is noted that the closest prior art of record, Lin, teaches the encryption of the feature codes and the hash values of a sequence of pictures, but Lin does not teach the sequence of operations indicated in claim 12:

a) calculating from the input signal a first block of subsequent hash values corresponding to a first time interval;

b) calculating from the output signal a second block of subsequent hash values corresponding to a second time interval, at least partially overlapping said first interval;

c) selecting one hash value from one of said first and second blocks of hash values;

d) searching for said hash value in the other one of said ,first arid second blocks of hash values;

e) calculating a difference between the first and second blocks of hash values in which the hash value found in step (d) has the same position as the selected hash value in the other one of said first and second blocks;

f) repeating steps (c)-(e) for a further selected hash value until said difference is lower than a predetermined threshold or until the number of hash values to be selected is lower than a predetermined threshold;

g) concluding to a correct operation of said signal transformation if the difference is lower than a predetermined threshold or concluding to a false operation of said signal transformation if the number of hash values to be selected is lower than a predetermined threshold.

Thus, the cited prior art alone or in combination does not fairly suggest or disclose the claimed combination of features.

Citation of Pertinent Art

7. The following prior art made of record but not relied upon is considered pertinent to the applicant's disclosure:

- Fridrich et al., ("Robust Hash Functions for Digital Watermarking," ITCC 2000, Las Vegas, Nevada, March 27-29, 2000) teach the use of digital watermarks for the

authentication of both video data and still images and for the integrity verification of visual multimedia.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to V. Paul Harper whose telephone number is (571) 272-7605. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

04/19/2004

V. Paul Harper
Patent Examiner
Art Unit 2654